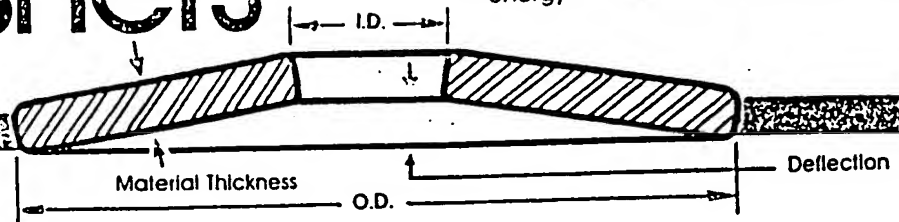


# Con washers

Use Solon Conical Compression Washers for:  
 • Thermal Shock! • Vibration!  
 • Compressive Set in Gaskets!  
 In these applications, Solon Conical Compression Washers used on the bolt provide a reservoir of energy that reduces load loss and maintenance



## AISI 6150 Alloy Steel Rockwell C 45/50

Bolt Size	Part No.	Washer O.D.	Material Thickness	Deflection (Flat)	Load* (Flat)
<b>1/4"</b> Washer I.D. .258"	4-L-42	.563	.042/.044	.013	1,100
	4-M-52	.688	.052/.054	.017	1,500
	4-H-61	.813	.061/.064	.023	2,000
	4-EH-70	.938	.070/.074	.030	2,700
<b>5/16"</b> Washer I.D. .322"	5-L-52	.688	.052/.054	.016	1,500
	5-M-61	.813	.061/.064	.020	2,000
	5-H-70	.938	.070/.074	.024	2,700
	5-EH-80	1.063	.080/.084	.031	3,500
<b>3/8"</b> Washer I.D. .386"	6-L-61	.813	.061/.064	.018	2,000
	6-M-70	.938	.070/.074	.022	2,700
	6-H-80	1.063	.080/.084	.029	3,500
	6-EH-89	1.188	.089/.093	.032	4,000
<b>7/16"</b> Washer I.D. .450"	7-L-70	.938	.070/.074	.020	2,700
	7-M-80	1.063	.080/.084	.026	3,500
	7-H-89	1.188	.089/.093	.031	4,000
<b>1/2"</b> Washer I.D. .515"	8-L-80	1.063	.080/.084	.023	3,500
	8-M-89	1.188	.089/.093	.028	4,000
	8-H-98	1.313	.098/.103	.033	4,500
	8-EH-112	1.500	.112/.118	.040	6,000
<b>9/16"</b> Washer I.D. .579"	9-L-89	1.188	.089/.093	.026	4,000
	9-M-98	1.313	.098/.103	.031	4,500
	9-H-112	1.500	.112/.118	.038	6,000
<b>5/8"</b> Washer I.D. .644"	10-L-98	1.313	.098/.103	.028	4,500
	10-M-112	1.500	.112/.118	.036	6,000
	10-H-131	1.750	.131/.137	.043	8,500
	10-EH-150	2.000	.150/.157	.056	12,000
<b>3/4"</b> Washer I.D. .773"	12-L-112	1.500	.112/.118	.033	6,000
	12-M-131	1.750	.131/.137	.043	8,500
	12-H-150	2.000	.150/.157	.053	12,000
	12-EH-168	2.250	.168/.176	.062	15,000
<b>7/8"</b> Washer I.D. .901"	14-L-131	1.750	.131/.137	.036	8,500
	14-M-150	2.000	.150/.157	.048	12,000
	14-H-168	2.250	.168/.176	.057	15,000
<b>1"</b> Washer I.D. 1.030"	16-L-150	2.000	.150/.157	.042	12,000
	16-M-168	2.250	.168/.176	.052	15,000
	16-H-187	2.500	.187/.196	.060	18,000
<b>1 1/8"</b> Washer I.D. 1.155"	18-L-168	2.250	.168/.176	.048	15,000
	18-M-187	2.500	.187/.196	.057	18,000
	18-H-206	2.750	.206/.216	.066	21,000
<b>1 1/4"</b> Washer I.D. 1.270"	20-L-187	2.500	.187/.196	.054	18,000
	20-M-206	2.750	.206/.216	.062	21,000
	20-H-225	3.000	.225/.236	.071	24,000
<b>1 3/8"</b> Washer I.D. 1.396"	22-L-206	2.750	.206/.216	.059	21,000
	22-M-225	3.000	.225/.236	.068	24,000
	22-H-244	3.250	.244/.256	.077	28,000
<b>1 1/2"</b> Washer I.D. 1.524"	24-L-225	3.000	.225/.236	.064	24,000
	24-M-244	3.250	.244/.256	.074	28,000
	24-H-262	3.500	.262/.275	.083	31,000

Finish: Mechanically zinc plated .0005" thick with a clear chromate dip. Guaranteed free of hydrogen embrittlement. Where plating is not required, a scale-free oiled finish can be supplied. Cadmium and tin can be mechanically plated on special order.

## 301 Stainless Steel Rockwell C 38/43

Bolt Size	Part No.	Washer O.D.	Material Thickness	Deflection (Flat)	Load* (Flat)
<b>1/4"</b> Washer I.D. .258"	4-L-42301	.563	.039/.045	.012	600
	4-M-52301	.688	.047/.053	.013	650
	4-H-61301	.813	.059/.065	.021	1,350
	4-EH-70301	.938	.070/.074	.023	1,450
<b>5/16"</b> Washer I.D. .322"	5-L-52301	.688	.047/.053	.013	1,000
	5-M-61301	.813	.059/.065	.015	1,100
	5-H-70301	.938	.070/.074	.022	1,500
	5-EH-80301	1.063	.080/.086	.023	1,700
<b>3/8"</b> Washer I.D. .386"	6-L-61301	.813	.059/.065	.015	1,300
	6-M-70301	.938	.070/.074	.020	1,500
	6-M-80301	.938	.080/.086	.014	1,850
	6-H-80301	1.063	.080/.086	.024	1,900
<b>1/2"</b> Washer I.D. .515"	8-L-80301	1.063	.080/.086	.019	2,300
	8-L-90301	1.063	.091/.099	.018	2,800
	8-M-89301	1.188	.091/.099	.023	2,600
	8H125301	1.125	.121/.129	.018	6,000
	820125301	1.250	.121/.129	.022	5,500

## 17-7PH Stainless Steel Rockwell C 38/43

Bolt Size	Part No.	Washer O.D.	Material Thickness	Deflection (Flat)	Load* (Flat)
<b>1/2"</b> Washer I.D. .515"	8-M-89177	1.188	.091/.099	.026	3,300
	8-H-90177	1.313	.091/.099	.030	3,200
	8-EH-112177	1.500	.112/.122	.035	4,200
	819125177	1.188	.120/.130	.019	5,700
<b>5/8"</b> Washer I.D. .644"	820125177	1.250	.120/.130	.022	6,500
	10-L-98177	1.313	.091/.099	.026	3,200
	10-M-112177	1.500	.112/.122	.030	4,500
	10-H-131177	1.750	.131/.141	.041	6,800
<b>3/4"</b> Washer I.D. .773"	10-EH-150177	2.000	.150/.160	.048	7,500
	1022131177	1.375	.131/.141	.022	6,600
	12-L-112177	1.500	.112/.122	.029	6,000
	12-M-131177	1.750	.131/.141	.035	7,200
	12-H-150177	2.000	.150/.160	.041	8,000

## Machine Screw Sizes

## 17-7PH Stainless Steel Rockwell C 38/43

Bolt Size	Part No.	Washer O.D.	Material Thickness	Deflection (Flat)	Load* (Flat)
<b>#6</b> Washer I.D. .142"	06-L-21177	.281	.018/.022	.005	175
	06-M-26177	.344	.023/.027	.008	275
	06-H-31177	.406	.029/.033	.009	400
<b>#8</b> Washer I.D. .168"	08-L-26177	.344	.023/.027	.007	275
	08-M-31177	.406	.029/.033	.009	400
	08-H-35177	.469	.033/.037	.010	500
<b>#10</b> Washer I.D. .196"	010-L-31177	.406	.029/.033	.008	400
	010-M-35177	.469	.033/.037	.009	500
	010-H-42177	.563	.039/.045	.012	600

{Finish: Scale-I and deburred.  
 Metric ID's available

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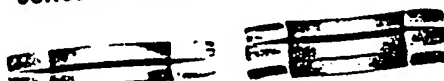
# Additional load and deflection washer combinations

on Compression Washers be used in series in a wide variety of applications requiring extra travel to preload against anticipated increased joint looseness. By stacking the washers face-to-face, deflection (travel) is doubled. Add a third washer and deflection is tripled.

**Shock Absorber** - Conical compression washers used in series on a shaft where recoil is a problem enable the multiple deflection increase to be used to absorb shock loads.

Parallel In parallel service, washers are tested. This increases the load of washers without increasing deflection. For example, a washer tested at a 4200 lb. load when used in parallel with a second washer increases the load to 8400 lbs. The first washer's deflection of .035" remains unchanged with the second washer tested on top.

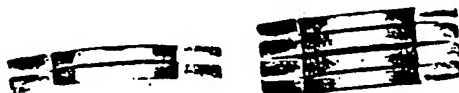
## Series Multiplies Deflection



**Two in Series**  
Load of One Washer -  
Deflection of Two  
Washers. Each can be at  
opposite ends of bolt.

**Three in Series**  
Load of One Washer.  
Deflection of Three  
Washers.

## Parallel Multiplies Load

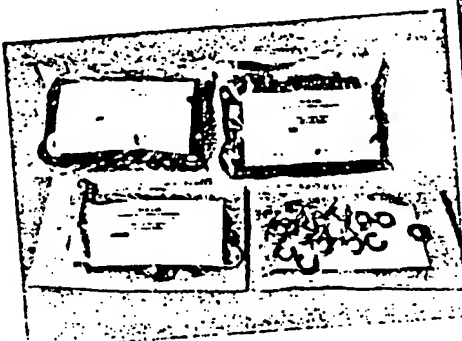


**Two in Parallel**  
Load of Two Washers.  
Deflection of One  
Washer.

**Two Parallel Sets  
in Series**  
Load of Two Washers.  
Deflection of Two  
Washers. Each Set can  
be at opposite ends of  
Bolt.

# Convenience packaging

■ Solon Compression Washers are normally shipped in bulk, but can be packaged in most any desired quantity on special order. Heavy gauge plastic bags are used for product visibility and positive sealing to prevent loss of parts. Labeling of individual packages consists of quantity, Solon part number, and customer part number or identification code as required.



## Typical Applications Include:

Small Engines  
Motor Generator Sets  
Structural Members  
Feeder Bus Bar  
Valve Gland Packing  
Chucks

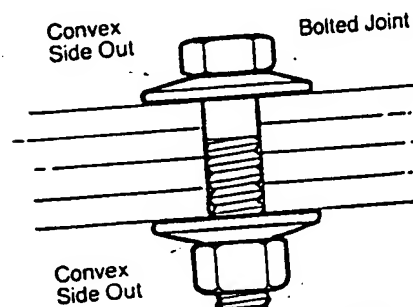
Switchgear  
Substations  
Heat Exchangers  
Flange Pipe Fittings  
Flange Bolt Circles  
Machine Tools

Off-Highway Equipment  
Tractors/Trucks/  
Locomotives  
Seismic Damping  
Line Hardware

# Recommended Installation

■ Select the largest compression washer possible. There should be no interference with washers on adjoining bolts or overhang at the edge of the connector.

Use a flat washer with an O.D. no smaller than the compression washer and approximately 100 percent thicker than the compression washer. If a thicker washer is not available, use a stack of three standard flat washers or a second compression washer.



Above: Two Washers in Series

1 The compression washer fits under the nut or bolt head, convex side out. The flat washer is used at the other end of the bolt.

2 Tighten the nut until a sudden increase in torque is noticed. The compression washer is now flattened. (The longer the arm on the wrench, the easier the torque increase can be detected.) Note: It is not necessary to "back off" the nut after tightening.

3 Where the thickness of the joint being assembled is greater than three inches, a second compression washer should be used at the opposite end of the bolt instead of the flat washer, and installed the same way as described in Step 2.

Bolts, nuts, and flat washers should be zinc, cadmium or tin plated.

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